

Appln. S.N. 10/697,615
Prelim. Amdt. dated March 2, 2006 with RCE
Docket No. 10010217-3

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In the claims:

1. (Currently amended) An applicator for delivering two or more different bioactive compositions, comprising:
an inkjet dispenser comprising multiple ejector heads, each of which is in fluid communication with an orifice adapted for high-speed ejection of droplets from the dispenser, the inkjet dispenser further including a main body;
multiple replaceable fluid reservoirs, each of which is configured to hold and to simultaneously deliver one of the bioactive compositions to a respective one of the multiple ejector heads ~~the orifice~~ for ejection therethrough, the replaceable fluid reservoirs at least partially insertable through the body, and each of the multiple reservoirs configured to hold a different bioactive composition; and
a body orifice spacer adapted to be positioned between the dispenser orifice and a target during ejection of the bioactive composition to the target; and
an electronic programmable device configurable, by a user, to adjust a dispensed ratio of one bioactive composition to another bioactive composition.
2. (Original) The applicator according to claim 1 wherein the applicator is an inhaler.
3. (Original) The applicator according to claim 2 wherein the applicator is a pulmonary inhaler.
4. (Previously presented) The applicator according to claim 1 wherein the inkjet dispenser is a piezoelectric droplet inkjet dispenser.
5. (Original) The applicator according to claim 1 wherein the spacer is external to the body.

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6. (Previously presented) The applicator according to claim 1 wherein the inkjet dispenser is adapted to dispense droplets of the bioactive compositions sized for respiratory inhalation.

7. (Previously presented) The applicator according to claim 1 wherein the inkjet dispenser is adapted to dispense droplets of the bioactive compositions sized for delivery to bronchial airways.

8. (Cancelled)

9. (Cancelled)

10. (Previously presented) The applicator according to claim 1 wherein the spacer is a mouthpiece spacer or a nasal spacer and the inkjet dispenser is disposed within the spacer.

11. (Previously presented) The applicator according to claim 10, further comprising a fluid conduit extending between each of the fluid reservoirs and the inkjet dispenser, the fluid conduits adapted to deliver the bioactive compositions from the fluid reservoirs to the inkjet dispenser, the fluid conduits extending at least partially through the spacer.

12. (Currently amended) The applicator according to claim 1 wherein:
the multiple fluid reservoirs include a first reservoir and a second reservoir;
the spacer defines an internal pathway;
~~the inkjet dispenser comprises the multiple fluid ejection heads include~~ first and second fluid ejection heads positioned in the internal pathway, each fluid ejection head having a respective orifice adapted to dispense droplets of one of the bioactive compositions; and

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the applicator further comprises a first fluid conduit and a second fluid conduit, the first fluid conduit extending between the first fluid reservoir and the first fluid ejection head, the second fluid conduit extending between the second fluid reservoir and the second fluid ejection head.

13. (Previously presented) The applicator according to claim 1 wherein the spacer is adapted to change a delivery direction.

14. (Previously presented) The applicator according to claim 1 wherein the inkjet dispenser is a thermal droplet inkjet dispenser.

15. (Cancelled)

16. (Currently amended) The applicator according to claim 15 wherein the programmable controller is a microprocessor ~~operable to dispense a predetermined amount of bioactive composition from the inkjet dispenser.~~

17. (Currently amended) The applicator according to claim 1 ~~45~~ wherein the controller is programmable from a remote computer in communication with the controller.

18. (Currently amended) The applicator according to claim 1 ~~45~~ wherein the controller is programmable from a keypad or touch screen mounted on an external surface of the body and in communication with the controller.

19. (Currently amended) An applicator for delivering three ~~two~~ or more different bioactive compositions, comprising:
an inkjet type dispenser comprising ~~plural~~ at least three fluid ejection heads, each ejection head further comprising a dispenser orifice;

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multiple containers configured for holding and simultaneously delivering one of the bioactive compositions to a respective one of the multiple ejector heads ~~the orifices~~, each container holding a different bioactive composition and operably coupled to each fluid ejection head by an independent conduit; ~~and~~

a body orifice spacer positioned between the fluid ejection heads and a target during ejection of the bioactive composition to the target; and

an electronic programmable device configurable, by a user, to adjust a dispensed ratio of one bioactive composition to another bioactive composition.

20. (Original) The applicator according to claim 19 wherein the applicator is an inhaler.

21. (Previously presented) The applicator according to claim 19 wherein the dispenser is a thermal droplet inkjet dispenser.

22. (Previously presented) The applicator according to claim 19 wherein the dispenser is a piezoelectric droplet inkjet dispenser.

23. (Original) The applicator according to claim 19 wherein the spacer is a mouthpiece spacer or a nasal spacer.

24. (Original) The applicator according to claim 19 wherein the spacer is dimensioned for at least partial insertion into a nose or mouth of a human.

25. (Previously presented) The applicator according to claim 19 wherein:
the spacer defines a delivery pathway substantially transverse to the applicator and has an open end for positioning at the target;
the dispenser orifices are disposed in the spacer; and

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each dispenser orifice is spaced the same distance from the open end of the spacer.

26. (Cancelled)

27. (Currently amended) The applicator according to claim 19 26-wherein the programmable controller is a microprocessor.

28. (Cancelled)

29. (Cancelled)

30. (Currently amended) The applicator of claim 19 26-wherein the controller is programmed to deliver bioactive compositions from the applicator in response to clinical or physical information.

31. (Cancelled)

32. (Previously presented) The applicator according to claim 19 wherein each fluid ejection head is in constant fluid communication with a respective container via a respective conduit such that bioactive composition from each container can flow, under the influence of gravity, to a respective fluid ejection head.

33. (Currently amended) An applicator for delivering two or more different bioactive compositions, comprising:

an inkjet dispenser comprising multiple ejector heads, each of which is in fluid communication with an orifice through which droplets are ejected in an ejection direction at high speed;

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multiple containers, each of which is configured for holding and substantially simultaneously delivering one of the bioactive compositions to a respective one of the multiple ejector heads ~~the orifice~~ for ejection therethrough, each of the multiple containers configured to hold a different bioactive composition; and
a delivery device that changes a delivery pathway of the droplets from the ejection direction to a delivery direction; and
an electronic programmable device configurable, by a user, to adjust a dispensed ratio of one bioactive composition to an other bioactive composition.

34. (Previously presented) The applicator according to claim 33 wherein the container comprises a first container for holding and delivering a first bioactive composition and a second container for holding and delivering a second bioactive composition, and the inkjet dispenser comprises a first orifice for ejecting droplets of the first bioactive composition and a second orifice for ejecting droplets of the second bioactive composition.

35. (Previously presented) The applicator according to claim 34 wherein the inkjet dispenser comprises a thermal inkjet type dispenser.

36. (Previously presented) The applicator according to claim 33 wherein the delivery device comprises a mouthpiece extending transverse to the ejection direction for delivering droplets of the bioactive compositions in a delivery direction that is transverse to the ejection direction.

37. (Currently amended) An applicator for delivering two or more different bioactive compositions to a mucous membrane, comprising:
an inkjet dispenser comprising multiple ejector heads, each of which is in fluid communication with an orifice, the orifice capable of ejecting the bioactive compositions therethrough;

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a first container configured to hold one of the bioactive compositions and operably coupled to the dispenser;

a second container configured to hold an other of the bioactive compositions and operably coupled to the dispenser;

a processor electrically connected to the jet dispenser, ~~and~~ programmed to simultaneously or sequentially deliver selected dosages of the bioactive compositions, and configurable, by a user, to adjust a dispensed ratio of one bioactive composition to an other bioactive composition; and

an input slot for removable memory electrically connected to the processor.

38. (Original) The applicator according to claim 37, further comprising means for programming the processor.

39. (Previously presented) The applicator according to claim 38 wherein the means for programming is a keypad or a touch screen mounted on a body of the inkjet dispenser.

40. (Original) The applicator according to claim 37, further comprising a display screen electrically connected to the processor.

41. (Original) The applicator according to claim 37 wherein the input slot is an input slot for a flash memory card.

42. (Previously presented) The applicator according to claim 37, further comprising a spacer positioned between the dispenser orifice and the target during ejection of the bioactive composition to the mucous membrane and wherein the jet dispenser comprises a thermal inkjet dispenser.

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43. (Currently amended) A kit for administering two or more different bioactive compositions to a subject, comprising:

an applicator, comprising an inkjet dispenser comprising multiple ejector heads, each of which is in fluid communication with an orifice for high-speed ejection of droplets from the dispenser, multiple replaceable fluid reservoirs, each of which is configured to hold and simultaneously deliver one of the bioactive compositions to a respective one of the multiple ejector heads the orifice for ejection therethrough, each of the multiple reservoirs configured to hold a different bioactive composition, and a separate body orifice spacer capable of being positioned between the dispenser orifice and the subject during ejection of the bioactive compositions to the subject; and
an electronic programmable controller operable to actuate the inkjet dispenser and configurable, by the subject, to adjust a dispensed ratio of one bioactive composition to an other bioactive composition.

44. (Previously presented) The kit according to claim 43, wherein the inkjet dispenser comprises first and second orifices for high-speed ejection of droplets from the dispenser, the multiple fluid reservoirs include a first fluid reservoir and a second fluid reservoir for holding and delivering the different bioactive compositions to the first and second orifices, respectively.

45. (Original) The kit according to claim 43, wherein the spacer connects to the applicator substantially transverse to the applicator.

46. (Previously presented) The kit according to claim 43 wherein the inkjet dispenser comprises a piezoelectric inkjet dispenser.

47. (Previously presented) The kit according to claim 43 wherein the inkjet dispenser comprises a thermal inkjet dispenser.

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48. (Original) The kit according to claim 44 wherein the controller controls the ejection of the bioactive composition in response to information about a physiological condition of the subject.

49. (Currently amended) A method for administering two or more different bioactive compositions to a subject, comprising:

providing an inkjet dispenser operatively connected to a programmable controller, the inkjet dispenser comprising a plurality of reservoirs, each of which is fluidly connected to an ejector head, each of the reservoirs is configured to contain a different bioactive substance, and each of the ejector heads is configured to dispense one of the different bioactive substances; wherein the reservoirs are cartridges capable of being removed and replaced through an opening in the dispenser;

electronically programming the controller so the dispenser dispenses a selected ratio of one bioactive substance to an other bioactive substance;

simultaneously dispensing the bioactive substances per the programming ~~compositions~~ from the containers through the jet dispenser into a mouth or nose; and removing one of the reservoirs.

50. (Currently amended) A method for administering two or more different bioactive compositions to a subject, comprising:

applying to a body orifice of the subject a body orifice spacer of an applicator, the applicator comprising a main body, a controller, and an inkjet dispenser, and having multiple ejector heads, each of which has a dispenser orifice through which droplets of the bioactive compositions are ejected, the applicator further comprising multiple containers configured to hold and simultaneously deliver one of the bioactive compositions to a respective one of the multiple ejector heads, wherein each of the multiple containers is configured to hold a different bioactive composition and wherein the spacer extends substantially transverse to the main body;

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electronically programming the controller so the dispenser dispenses a selected ratio of one bioactive substance to an other bioactive substance; and
simultaneously dispensing the bioactive compositions per the programming from the dispenser toward the body orifice.

51. (Original) The method according to claim 50 wherein the body orifice is a mouth or nose of a human subject.

52. (Previously presented) The method according to claim 50 comprising dispensing the bioactive composition from the dispenser toward the body orifice in response to a physiological condition of the subject.

53. (Cancelled)

54. (Currently amended) The method according to claim 50 ~~53~~ wherein the controller is programmable from a remote computer in communication with the controller.

55. (Original) The method according to claim 54 wherein the controller is programmable from a keypad or a touch screen mounted on an external surface of the main body and in communication with the controller.

56. (Original) The method according to claim 50 wherein the droplets are sized for respiratory inhalation.

57. (Original) The method according to claim 50 wherein the droplets are sized for delivery to bronchial airways.

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